MAPTrix™-V  Vitronectin mimetic mussel adhesive protein

Overview
Vitronectin is a multi-functional plasma and extracellular matrix protein that is used to promote cell attachment, spreading, proliferation, migration, and differentiation in a variety of normal and neoplastic cells such as fibroblasts, human carcinoma of the cervix and breast, and rat glioma.\(^1,3,4\)

Vitronectin is found as a mixture of 75 kD and 65 kD polypeptides, the 65 kD most likely being the result of endogenous proteolysis of the 75 kD polypeptide\(^2\).

It contains the amino acid structural motif, Arg-Gly-Asp (RGD), which is involved in cell attachment. It also contains heparin binding domains that bind complement factor C7, complement factor C8, and complement factor C9.

Characteristics
MAPTrix™-V is produced in Kollodis’ proprietary \textit{E.coli} expression system and purified using an ISO compliant manufacturing process.

Molecular Weight:
- \(~24,000\) dalton

Formula:
- The product is supplied as a 0.2 mg/mL, 0.5 mg/mL (in 2.5mg or 5.0mg vials) or 1.0 mg/mL aqueous solution in pure water
- Lyophilized powder is also available upon request

Solubility:
- Soluble in a variety of buffers, including water, under a wide range of pH conditions (pH=2-9.0)
- Note: Buffers of media containing Ca\(^{2+}\) or Mg\(^{2+}\) added to MAPTrix™ may result in the formation of insoluble aggregates. This will not occur if the buffering capacity of the diluent brings the pH to 9.0 or lower.

Product Description
The major vitronectin’s integrin receptors are \(\alpha_v\beta_3\) and \(\alpha_v\beta_5\).\(^2\)

MAPTrix™-V provides \(\alpha_v\beta_3\) and/or \(\alpha_v\beta_5\), and heparin binding peptide motifs in the Mefp based mussel adhesive protein.

The RGDV and heparin binding motif have been demonstrated to promote cell adhesion, spreading, migration and proliferation in various cell lines\(^1,2,3\).

Quality Control
- Purity 93% by SDS PAGE
- pH 6.0 – 7.5
- Endotoxin Less than 20 EU/mL per LAL assay
- Sterility Tested and found negative for the presence of bacteria, fungi and mycoplasma
- Functionality The biological activity of vitronectin peptide is determined in a cell culture assay under serum free conditions

Coating Procedure:
- Transfer desired volume of MAPTrix™-V solution from the vial to a dilution vessel as required.
- Dilute to desired concentration using sodium bicarbonate buffer solution (NaHCO\(_3\): 500mM at final concentration) for uniform & even coated surface. (Note: Use the recommendation as guidelines to determine the optimal coating conditions for your culture system.)
- Add appropriate amount of diluted MAPTrix™-V solution to the culture surface
- Incubate at room temperature or 37°C, covered, for 1-3 hours. Best uniform coated surface with 1-2 hr incubation.
- Rinse the coated surfaces carefully with sterile medium or PBS. Avoid scratching the coated surface.

Products

<table>
<thead>
<tr>
<th>Cat. No</th>
<th>Peptide Motif</th>
<th>Receptor</th>
<th>Cat. No</th>
<th>Peptide Motif</th>
<th>Receptor</th>
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<td>FRHRNRKGY</td>
<td>heparin</td>
<td>168031~4</td>
<td>RGDV</td>
<td>(\alpha_v\beta_3), (\alpha_v\beta_5)</td>
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<td>KKQRFRHRNRKGYRSQ</td>
<td>heparin</td>
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MAPTrix™ ECM: A Combinatorial ECM Library

Storage Conditions:

- Stable for a minimum of 6 months from day of shipment when stored at 2-8°C
- Remaining, unused solution of MAPTrix™ ECM can be stored at 2-8°C with appropriate sealing for 6 months. *DO NOT FREEZE* the remaining solution. However, the remaining material is recommended to be used within 1 month after the vial has been opened.

References